## Spiral Review

Find any asymptotes, intercepts, domain and range.

1.) 
$$y = 3^{x-2} + 1$$

2.) 
$$y = 2 - \log_{10} x$$

$$HA: Y=1$$
  
y-int:  $(0, \frac{19}{9})$ 

domain:  $(-\infty, \infty)$ 

range: (1,00)

domain: (0,00) = -109,00x

X>100= X

# p.210 3.4 Solving Exponential and Logarithmic Equations

To solve logarithmic equations:

- 1.) If given natural log (In), change base to e.
- 2.) If there are logs on both sides, drop the logs and solve.
- 3.) If there is only one log, change to exponential form and solve.

\*\*If you have more than one answer, you must check to see that the solution works in the original equation.

#### Students will be able to solve a logarithmic equation.

Example 1: Solve the logarithmic equation.

a.) 
$$\ln x - \ln 2 = 0$$

$$\ln \frac{x}{a} = 0$$

$$e^{in\frac{\lambda}{2}}=e^{\circ}$$

$$\frac{2}{x} = |\cdot|$$

$$b.) \ln x = -14$$

$$(x) = e^{-14}$$

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$$X = 8.315 e^{-7}$$

c.) 
$$\log_{4} 81 = 2$$
 Check  
 $\chi^{2} = \sqrt{81}$   $\sqrt{\log_{4} 81} = 2$ ?  
 $\chi = \pm 9$   $\times \log_{4} 81 = 2$ ?

d.) 
$$ln(3x+5) = 8$$

$$e^{\ln[3x+5]} = e^{8}$$

$$3x+5=e^{8}$$

$$\frac{3}{3} = e^{3} - 5$$

### Students will be able to solve a logarithmic equation.

$$e \log_0(4+x) = \log_0 2x$$

f.) 
$$\log_{12} x^2 = 6$$

$$\frac{1}{12} = \frac{1}{12} \times \frac{1}{12}$$

$$g \cdot \log_3 x + \log_3(x - 8) = 2$$

$$100^{8} \times (x-8) = 3$$

$$\log_{3}^{\times} |\log_{3}^{-9}| 3^{2} = \chi(x-8)$$

$$\log_{3}9 + \log_{3}1$$
  $y = x^{2} - 8x - 9$   
 $0 = (x - 9)x + 1$ 

h.) 
$$\frac{3}{3} + 2 \ln x = 10$$

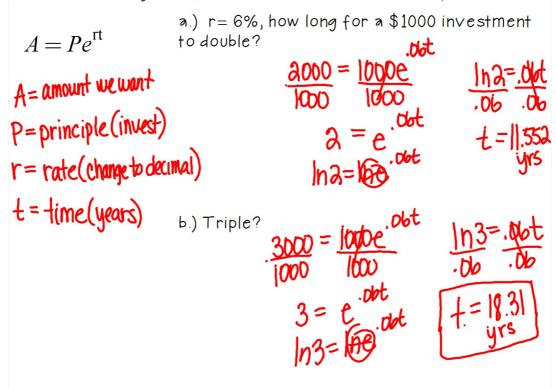
$$\ln x = \frac{1}{2}$$

$$e^{-1}x = e^{-\frac{1}{2}}$$

$$X = e^{\frac{1}{3}}$$
  
 $X = 33.115$ 

#### Students will be able to solve real-life application problems.

Example 2: Use the formula for continuous compounding, to find the time required for the balance to double or triple.



Turn-in: p.217 (44, 96, 102, 106)

HW: p.217 (37-45,93-113,143-147 odds)